

Strategic approach key to BRD protection

A management strategy that reduces stress and a metaphylactic approach to treatment are two powerful weapons in controlling respiratory disease in cattle, a recent buiatrics symposium was told

Bovine Respiratory Disease (BRD) is an ever-present risk in cattle herds and one that is often undetected at sub-clinical levels or under-diagnosed. It can have a significant economic impact, limiting animal growth and extending the fattening period.

Meanwhile, farm husbandry practices that reduce levels of stress in cattle can decrease incidences of BRD outbreaks, while metaphylactic treatment programmes can deliver comprehensive herd protection in the most economic manner.

These were some of the findings outlined at the recent Merial symposium 'Bovine Respiratory Disease, can we make life easier?' held as part of the first European Buiatrics Forum in Marseille, France. Designed to bring academic, practitioner and industry expertise in bovine medicine to a pan-European audience, the European Buiatrics Forum was organised by the French Buiatrics Association and held between 1 and 3 December, 2009. The symposium was part of a broader scientific programme included plenary lectures, workshops, a posters' exhibition and a commercial exhibition. Keynote speakers at the Forum included Dr João Cannas da Silva, Portugal; Dr John Mee, Ireland and Dr Carl-Christian Gelfert, Austria.

Economic costs

The Merial-organised symposium 'Bovine Respiratory Disease, can we make life easier?' saw a number of experts bring together data on the prevalence and management of BRD in a European context along with recent field study data on the impact of Zactran in metaphylactic and curative use during outbreaks of BRD.

A presentation on the 'epidemiology of respiratory disease among calves and young bulls in Western France' by Dr Sébastien Assie, Nantes Veterinary School, France, detailed the economic impact of BRD at all levels, including sub-clinical.

Dr Assie's study found underdiagnosis to be highly prevalent on farms. While up to 35% of calves monitored in the study showed slight clinical signs of BRD, only a few of these were detected by the farmers. The research also found the situation complicated by the fact that the prevalence of BRD is highly variable. No BRD was detected in 21% of the 137 farms studied in the project; low and moderate incidences were found on 39% of farms; a high occurrence on 28% of farms; and severe outbreaks on 12%. The researchers calculated that farms with the most severe cases could see over 20% of their annual net profit wiped out as a result. [See Table 1]

The research on young bulls provided further evidence of the economic consequences of outbreaks of BRD. Among the 100 pens monitored in 71 young beef bull operations, Dr Assie's research found an incidence rate of BRD of 17.4% with at least one case in 53 of the pens. Moderate occurrences of BRD were seen to cost farms an 11.4% reduction in their annual net profit, while high occurrences wiped an average of 26.3% from net profits. Extra costs were incurred not only as a result of treatments but, crucially, in increased feeding costs as a result of longer fattening periods in both clinical and sub-clinical cases. [See Table 2]

With beef farming a business operating on increasingly thin profit margins, the extended fattening periods and deterioration of carcass grades is one of the most serious consequences of BRD for farmers. Dr Assie's research found that sub-clinical cases of BRD could add, on average, 33 days to the fattening period, a figure that could essentially be doubled for cases with clinical signs.

Dr Assie concluded his presentation by reiterating the high incidence and economic impact of BRD and the need for further studies on possible economic advantages of group treatment of cattle for BRD. He identified, in particular, the need to define the criteria to switch from individual curative treatment to metaphylactic treatment in BRD outbreaks.

New weaning strategies

Dr Alex Bach, IRTA, Spain presented his findings on ‘epidemiology and management of BRD in an intensive dairy heifer replacement unit in Spain’. The unit in question, Rancho Las Nieves, is one of the largest of its kind in Europe, holding 6,500 animals from 11-days old to 21 months.

Because of the high levels of commingling between animals of different origins, controlling the spread of calf diseases is an overriding priority at the ranch. His research showed that, contrary to expectations and conventional thinking, the risk of respiratory problems was only marginally (8%) lower in animals with a high serum protein level (related to colostrum intake) on arrival compared to calves with a low protein serum level and, furthermore, that good management, medication and environmental conditions can overcome immune deficiencies.

Dr Bach’s research also found that, in spite of it being frequently recommended, and extensively implemented, there was no scientific evidence of the advantage of keeping calves individually housed for a week after weaning (one of the key stress points in a calf’s life).

Dr Bach’s team tested two alternative weaning strategies at Rancho Las Nieves: the first evaluated whether allowing calves to remain individually housed for six days after weaning was beneficial; and the second assessed the impact of moving calves in groups before weaning. The data from the first experiment showed that the incidence of respiratory problems was significantly higher when calves were grouped together six days after weaning than among those grouped together on the day of weaning.

[See Table 3]

In a second experiment, he found that the calves grouped pre-weaning consumed more solid feed than those individually housed; had a lower number of respiratory cases and reached target body weight six days earlier. The earlier move also had economic benefits in terms of reduced labour costs and the number of individual hutches needed. Dr Bach also noted that BRD incidence was influenced by the stocking density of calves after they had been moved from individual housing, with outbreaks some 30% lower in pens containing five calves as compared to those with seven.

Metaphylactic approach

Echoing Dr Bach’s observation that progressive management can overcome some of the difficulties in disease control, Dr Cedric Dezier, Technical Services, France, Merial, quoted Pasteur’s famous words ‘the pathogen is nothing, the terrain is everything’ in the final symposium presentation. Outlining the results from a French field study of gamithromycin (Zactran) which involved 167 healthy cattle from eight different sources, Dr Dezier explained the cattle were brought together from different farms, placed in hygienic and comfortable housing conditions and fed as normal. Within four days of arrival, 13 clinical cases of BRD were diagnosed and, at this point, the cattle were split into three groups: (1) the 13 clinical cases which were treated with gamithromycin and ketoprofen, a non-steroidal anti-inflammatory drug (NSAID); (2) 62 animals treated on a metaphylactic basis with gamithromycin; and

(3) 92 animals treated on a case-by-case basis (these were the heaviest animals) also with gamithromycin and ketoprofen. Over the following eight days, 26 cases of BRD were recorded and treated in group 3, while no cases were observed in group 2 and the cattle in group 1 showed a marked improvement. By day 14, complete recovery of the animals in group 3 was confirmed, while no further outbreaks or relapses in the two other groups were recorded. Nasal swabs taken from the 13 sick animals in group 1 tested positive for *Mannheimia haemolytica*; *Pasteurella multocida*; *Mycoplasma bovis*; RSV, PI3 and Respiratory Bovine Coronavirus.

Dr Dezier concluded that the experiment pointed to an optimal cure and prevention as a result of use of gamithromycin, adding that monitoring and treatment on a case-by-case basis incurs significant extra handling expenses over the metaphylactic approach. The role of farmers and stockmen in managing BRD is critical, particularly if a practice of treatment on a case-by-case basis is adopted, as the success of such an approach depends crucially on high levels of vigilance, good handling facilities and good stockmanship.

Value

Summarising the value of the symposium, Andy Forbes, Merial, said Zactran had proven its value in the fourteen months since its launch. ‘Zactran, with its potent antibacterial activity and its fast acting and persistent characteristics, has lead us to believe we can indeed make life easier for farmers and veterinarians through reliability and ease of use with a single administration.’ He added that the symposium had highlighted the value of an integrated and planned approach to management of BRD. ‘We believe the optimal use of veterinary medicines such as gamithromycin can only be achieved through knowledge of several other factors, including epidemiology, the impact of the disease, appropriate diagnostics, farm-level finances and farmer behaviour,’ he concluded.

TABLE 1 Economic impact of BRD on farms

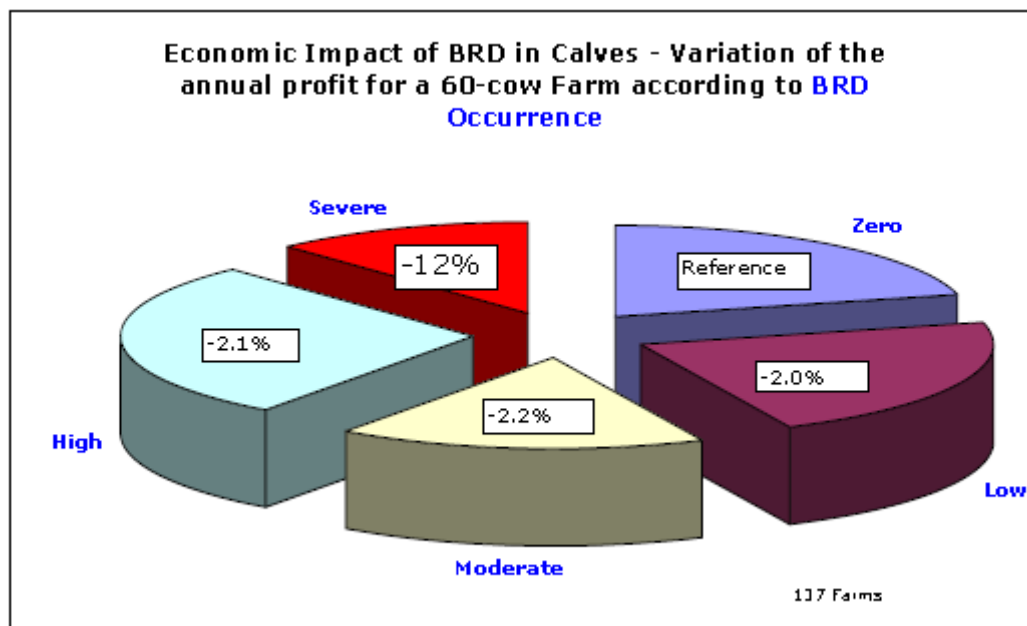


TABLE 2 Economic impact of BRD on animal weight gain



Young bulls Economic Impact of BRD

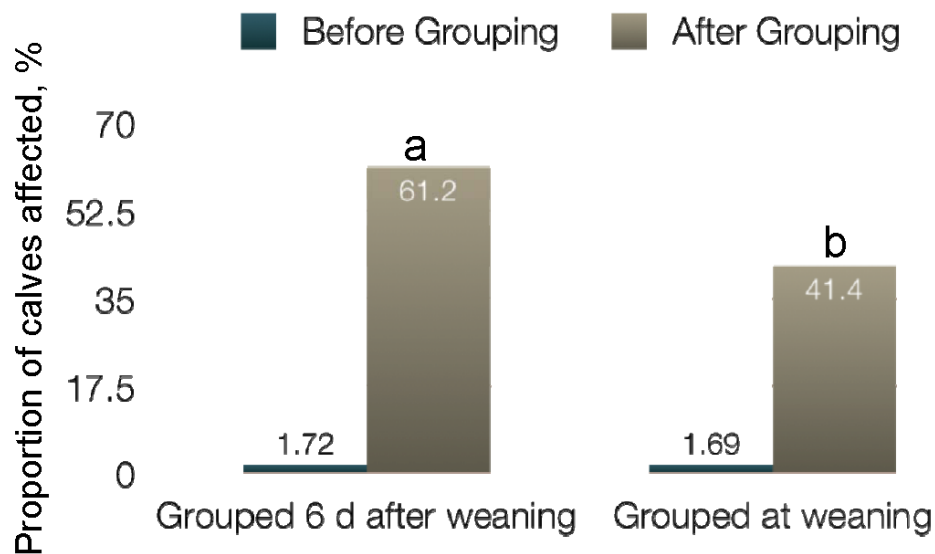
Detection of cases ?

Classes of young bulls	Average Daily Gain (g/d)	Length fattening period (days)	Carcass grade
Non treated in a pen without cases	1439 g	276	U-
Non treated in a pen with cases	- 41	+ 33	U-
Treated, slight clinical signs	- 68	+ 58	U-
Treated, medium clinical signs	- 61	+ 44	U-/R+
Treated, severe clinical signs	- 108	+ 59	R+

TABLE 3 - Impact on BRD rates of grouping at weaning stage

Calves had fewer Respiratory Problems when grouped at weaning rather than 6 days later

Incidence of Respiratory Problems



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